IN THE CLAIMS:

Claims 1-19 (Canceled).

20. (Currently Amended) A method of stabilizing temperature of a fuel injector in a direct injection application, the fuel injector having a body with a longitudinal axis; an armature proximate an inlet of the body; a needle operatively connected to the armature; a seat disposed at the outlet of the body; and a swirl generator proximate the seat, the method comprising:

providing the needle as an elongated generally cylindrical member with a substantially uniform cross-sectional area; and

selecting the body to surround the needle and form a body passage that communicates with and surrounds substantially an entire length of the elongated, generally cylindrical member, the body passage maintains an operative relationship between the body and the needle, the body passage being part of a fuel passageway the permits fuel to pass from a fuel inlet to a fuel outlet of the fuel injector;

wherein fuel in the body passage transfers heat from the body directly to the needle to stabilize temperature of at least a portion of the fuel injector and to maintain an operative relationship between the body and the needle,

wherein the average cross-sectional area of the body passage is less than 2.25 times the substantially uniform cross-sectional area of the needle,

the method further comprising:

providing the seat separate from, but coupled with the body, the seat having a first surface exposed to the body passage and a second surface exposed to an exterior of the fuel injector, the first and second surfaces being in generally parallel relation with each other and generally transverse with respect to the longitudinal axis of the body;

configuring a plurality of cut-outs ~~at least one cut-out~~ in the first surface ~~to form a volume~~ that ~~extends~~ extend into an interior of the seat and that are ~~is~~ separate from the fuel outlet, ~~wherein the at least one cut-~~

~~out comprises a plurality of separated volumes,~~ and each of the plurality of cut-outs ~~volumes~~ is defined by a respective wall and each of the respective walls comprises a cylindrical side wall and an end wall; and

permitting fuel to enter the volume to collect in the interior of the seat and reduce an operative temperature of the seat.

21. (Canceled)

22. (Currently Amended) A method of stabilizing temperature of a fuel injector in a direct injection application, the fuel injector having a body with a longitudinal axis; an armature proximate an inlet of the body; a needle operatively connected to the armature; a seat disposed at the outlet of the body; and a swirl generator proximate the seat, the method comprising:

providing the needle as an elongated member with a substantially uniform cross-sectional area; and

selecting the body to surround the needle and form a body passage that communicates with and surrounds substantially an ~~the~~ entire length of the elongated member, the body passage maintains an operative relationship between the body and the needle, the body passage being part of a fuel passageway the permits fuel to pass from a fuel inlet to a fuel outlet of the fuel injector;

wherein fuel in the body passage transfers heat from the body directly to the needle to stabilize temperature of at least a portion of the fuel injector and to maintain an operative relationship between the body and the needle,

wherein the step of providing further comprises providing a substantially cylindrical member as the needle, and a cylindrical annulus as a neck of the body, the cylindrical annulus having an inner diameter that is no more than 50% greater than substantially uniform diameter of the substantially cylindrical member, and an outer diameter that is no less than 100% greater than the inner diameter,

the method further comprising:

providing the seat separate from, but coupled with the body, the seat having a first surface exposed to the body passage and a second surface exposed to an exterior of the fuel injector, the first and second surfaces being in generally parallel relation with each other and generally transverse with respect to the longitudinal axis of the body;

configuring a plurality of cut-outs ~~at least one cut-out~~ in the first surface ~~to form a volume~~ that ~~extends~~ extend into an interior of the seat and that are ~~is~~ separate from the outlet, ~~wherein the at least one cut-out comprises a plurality of separated volumes,~~ and each of the plurality of cut-outs ~~volumes~~ is defined by a respective wall and each of the respective walls comprises a cylindrical side wall and an end wall; and

permitting fuel to enter the volume and collect in the interior of the seat to reduce an operative temperature of the seat.

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (Currently Amended) The method of claim 22, wherein ~~each of~~ the plurality of cut-outs are disposed about the needle ~~volumes are disposed concentrically with respect to the needle~~.

27. (Currently Amended) The method of claim 26, wherein each of the plurality of ~~volumes are~~ cut-outs is disposed equiangularly about the needle.

28. (Canceled)

29. (Canceled)